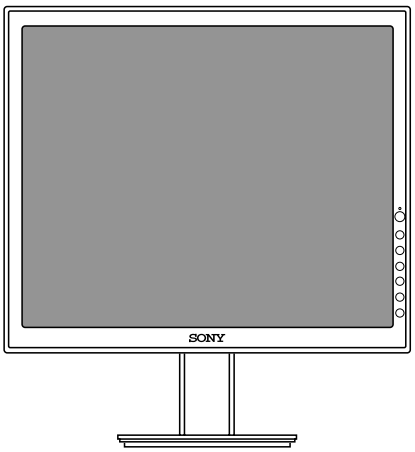
SDM-S204

SERVICE MANUAL

US Model
Canadian Model
AEP Model
J Model



TFT LCD COLOR COMPUTER DISPLAY

SONY®

There are some different LCD panels are used in the model SDM-S204.
Therefore the repair parts are also different.
Please confirm the serial number before repairing,

SDM-S204

MODEL NAME	Color	Dest.	SER NO.(Fujitsu)	SER NO.(LPL)
SDM-S204	GRAY	AEP	9,300,001-9,400,000	9,400,001-9,500,000
SDM-S204	BLACK	U/C	9,200,001-9,250,000	9,250,001-9,300,000
SDM-S204	BLACK	AEP	9,500,001 - 9,600,000	-
SDM-S204	BLACK	J	9,750,001-9,775,000	9,775,001-9,800,000

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SPECIFICATIONS

1. LCD CHARACTERISTICS

Type	: TFT Color LCD Module
Size	: 20.1 inch
Pixel Pitch	: 0.255 (H) x 0.255 (V)
Color Depth	: 16.7M colors
Electrical Interface	: LVDS
Surface Treatment	: Anti, Hard-coating(2H)
Operating Mode	: Normally Black
Backlight Unit	: Top/Bottom edge side 6-CCFL (Cold Cathode Fluorescent Lamp)

2. OPTICAL CHARACTERISTICS

2-1. Viewing Angle by Contrast Ratio ≥ 10
Left : -85° min. Right : +85° min.
Top :+85° min. Bottom : -85°min.

2-2. Luminance : 200(min), 250(Typ.)

2-3. Contrast Ratio : 400(min), 600(Typ.)

3. SIGNAL (Refer to the Timing Chart)

3-1. Sync Signal
• Type : Separate Sync,
SOG (Sync On Green)
Composite Sync

3-2. Video Input Signal
1) Type : R, G, B Analog
2) Voltage Level : 0 ~ 0.7 V

3) Input Impedance : 75 Ω

3-3. Operating Frequency

	Analog(SXGA)	**(UXGA)**
Horizontal	: 28 ~ 92kHz	28 ~ 75kHz
Vertical	: 48 ~ 85Hz	60Hz
Dot clock	: <165MHz	Dot clock:<165MHz

Digital

Horizontal	: 28 ~ 75kHz	
Vertical	: 60Hz	Dot clock:<165MHz

4. Max. Resolution
Analog/Digital : 1600 x 1200 / 60Hz

5. POWER SUPPLY

5-1. Power : AC 100-240V~, 50/60Hz , 1.2A
5-2. Power Consumption

MODE (100/50Hz, 240V/60Hz)	H/V SYNC	VIDEO	POWER CONSUMPTION	LED COLOR
POWER ON (NORMAL)	ON/ON	ACTIVE	less than 60 W	GREEN
STAND BY	OFF/ON	OFF	less than 2.7W	AMBER
SUSPEND	ON/OFF	OFF		
DPMS OFF	OFF/OFF	OFF		
POWER S/W OFF	-	-	less than 2.7W	RED

6. ENVIRONMENT

6-1. Operating Temperature: 5°C~35°C (41°F~95°F)

6-2. Relative Humidity : 10%~80%
(Non-condensing)
6-3. MTBF : 50,000 Hours(Min)

7. DIMENSIONS (with TILT/SWIVEL)

Width	: 440.5 mm (17.34")
Depth	: 234 mm (9.21")
Height	: 447.5 mm (17.61")

8. WEIGHT (with TILT/SWIVEL)

Net. Weight	: 7.5kg (16.87 lbs)
Gross Weight	: 10.9 kg (24.03 lbs)

PRECAUTION

WARNING FOR THE SAFETY-RELATED COMPONENT.

- There are some special components used in LCD monitor that are important for safety. ***These parts are marked ⚠on the schematic diagram and the replacement parts list.*** It is essential that these critical parts should be replaced with the manufacturer's specified parts to prevent electric shock, fire or other hazard.
- Do not modify original design without obtaining written permission from manufacturer or you will void the original parts and labor guarantee.

TAKE CARE DURING HANDLING THE LCD MODULE WITH BACKLIGHT UNIT.

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- The module not be exposed to the direct sunlight.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a softmaterial. (Cleaning with a dirty or rough cloth may damage the panel.)

⚠ CAUTION

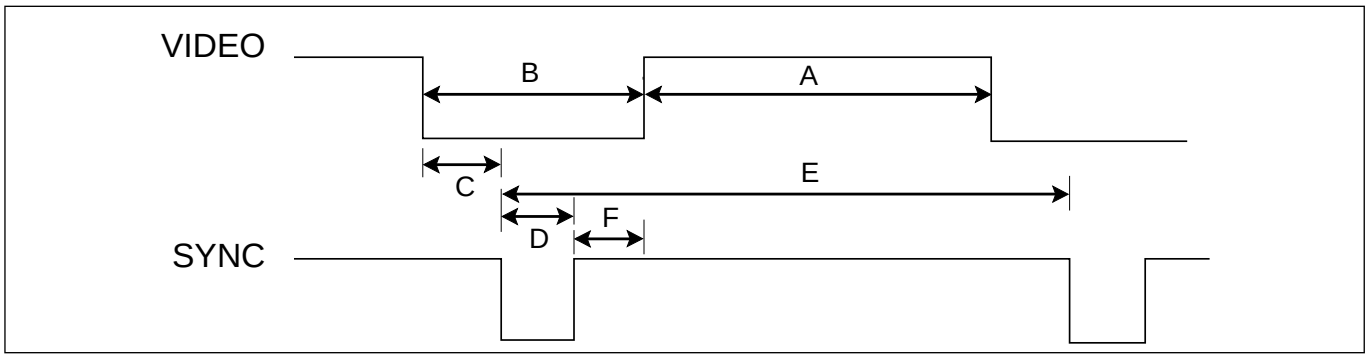
Please use only a plastic screwdriver to protect yourself from shock hazard during service operation.

⚠ WARNING

BE CAREFUL ELECTRIC SHOCK !

- If you want to replace with the new backlight (CCFL) or inverter circuit, must disconnect the AC adapter because high voltage appears at inverter circuit about 650Vrms.
- Handle with care wires or connectors of the inverter circuit. If the wires are pressed cause short and may burn or take fire.

TIMING CHART



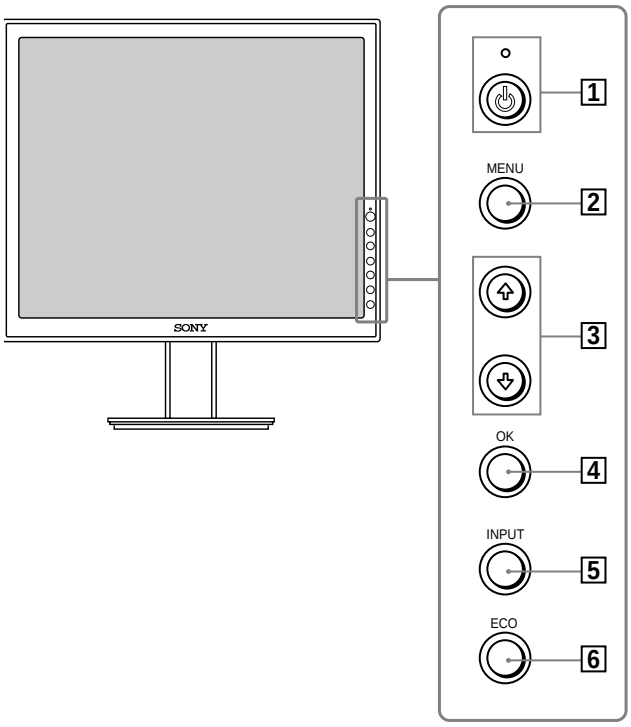
<< Dot Clock **(MHz),** Horizontal Frequency **(kHz)**, Vertical Frequency **(Hz)**, Horizontal etc... **(µs)**, Vertical etc... **(ms) >>**

Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking time(C)	Sync Duration (D)	Back Porch (F)	Front Porch (B)	Resolution
1	H	–	28.35	31.50KHz	900	720	180	108	54	18	**720 x 400 70Hz**
	V	–		70.156Hz	449	400	49	3	34	12	
2	H	–	31.5	37.86KHz	832	640	192	64	96	32	**640x350 85Hz**
	V	–		85.08Hz	445	350	95	3	60	32	
3	H	–	25.175	31.47KHz	800	640	160	96	48	16	**640 x 480 60Hz**
	V	–		59.940Hz	525	480	45	2	33	10	
4	H	+	31.5	37.50KHz	840	640	200	64	120	16	**640 x 480 75Hz**
	V	+		75.0Hz	500	480	20	3	16	1	
5	H	–	36	43.27KHz	832	640	192	56	80	56	**640 x 480 85**
	V	–		85.008Hz	509	480	29	3	25	1	
6	H	–	31.505	35.162KHz	896	720	176	40	102	34	**720 x 480 60Hz**
	V	–		59.901Hz	587	480	107	2	93	12	
7	H	–	35.5	37.927KHz	936	720	216	72	108	36	**720 x 400 85Hz**
	V	–		85.039Hz	446	400	46	3	42	1	
8	H	–	36	35.156KHz	1024	800	224	72	128	24	**800 x 600 56Hz**
	V	–		56Hz	625	600	25	2	22	1	
9	H	+	40	37.879KHz	1056	800	256	128	88	40	**800 x 600 60Hz**
	V	+		60.317Hz	628	600	28	4	23	1	
10	H	–	50	48.077KHz	1040	800	240	120	64	56	**800 x 600 72Hz**
	V	–		72Hz	666	600	66	6	23	37	
11	H	+	49.5	46.875 KHz	1056	800	256	80	160	16	**800x600 75Hz**
	V	+		75.0 Hz	625	600	25	3	21	1	
12	H	–	56.25	53.670KHz	1048	800	248	64	152	32	**800x600 85Hz**
	V	–		85.06Hz	631	600	31	3	27	1	
13	H	–	57.285	49.727KHz	1152	832	320	64	224	32	**832 x 624 (MAC 16") 75Hz**
	V	–		74.553Hz	667	624	43	3	37	3	
14	H	+	65	48.363KHz	1344	1024	320	136	160	24	**1024 x 768 60Hz**
	V	+		60.004Hz	806	768	38	6	29	3	
15	H	+	75	56.476KHz	1328	1024	304	136	144	24	**1024 x 768 70Hz**
	V	+		70.069Hz	806	768	38	6	29	3	
16	H	+	78.75	60.023KHz	1312	1024	288	96	176	16	**1024 x 768 75Hz**
	V	+		75.029Hz	800	768	32	3	28	1	
17	H	+	80	60.241KHz	1328	1024	304	96	176	32	**1024 x 768 (MAC 19") 75Hz**
	V	–		74.927Hz	804	768	36	3	30	3	

Mode	H/V Sort	Sync Polarity	Dot Clock	Frequency	Total Period (E)	Video Active Time (A)	Blanking time(C)	Sync Duration (D)	Back Porch (F)	Front Porch (B)	Resolution
18	H	–	94.5	68.677KHz	1376	1024	352	96	208	48	**1024 x 768**
	V	–		85Hz	808	768	40	3	36	1	**85Hz**
19	H	–	108	67.500KHz	1600	1152	448	128	256	64	**1152 x 864**
	V	+		75.000Hz	900	864	36	3	32	1	**75Hz**
20	H	+	100	68.681KHz	1456	1152	304	128	144	32	**1152x870 (MAC 21)**
	V	+		75.062Hz	915	870	45	3	39	3	**75Hz**
21	H	+	92.94	61.795KHz	1504	1152	352	128	194	30	**1152 x 900**
	V	+		65.950Hz	937	900	37	4	31	2	**65Hz**
22	H	+	105.59	71.732KHz	1472	1152	320	96	208	16	**1152 x900**
	V	+		76.068Hz	943	900	43	8	33	2	**76Hz**
23	H	+	108	60.000KHz	1800	1280	520	112	312	96	**1280x960**
	V	+		60.000Hz	1000	960	40	3	36	1	**60Hz**
24	H	+	148.5	85.938KHz	1728	1280	448	160	224	64	**1280x960**
	V	+		85.002Hz	1011	960	51	3	47	1	**85Hz**
25	H	–	108	63.981KHz	1688	1280	408	112	248	48	**1280x1024**
	V	+		60.020Hz	1066	1024	42	3	38	1	**60Hz**
26	H	–	135	79.976KHz	1688	1280	408	144	248	16	**1280 x 1024**
	V	+		75.025Hz	1066	1024	42	3	38	1	**75Hz**
27	H	–	157.5	91.146KHz	1728	1280	448	160	224	64	**1280x1024**
	V	+		85.02Hz	1072	1024	48	3	44	1	**85Hz**
28	H	–	121.75	65.317KHz	1864	1400	464	144	232	88	**1400x1050**
	V	+		59.978Hz	1089	1050	39	4	32	3	**60Hz**
29	H	–	156	82.278KHz	1896	1400	496	144	248	104	**1400x1050**
	V	+		74.867Hz	1099	1050	49	4	42	3	**75Hz**
30	H	–	162	75KHz	2160	1600	560	192	304	64	**1600x1200**
	V	+		60Hz	1250	1200	50	3	46	1	**60Hz**

OPERATING INSTRUCTIONS

Front Control Panel



1. ⏻ (Power) switch and ⏻ (power) indicator
This switch turns the monitor on when the power indicator lights up in red. To turn the monitor off, press this switch again.
If the power indicator does not light up, press the MAIN POWER switch.

2. MENU Button
This button turns the menu screen on and off.

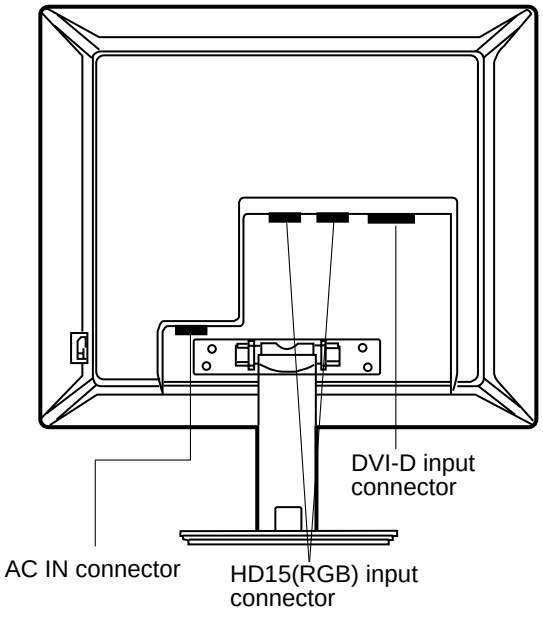
3. ⇧/⇩ Buttons
These buttons are used to select the menu items and make adjustments.

4. OK Button
This button actives tge selected menu item and adjustments made using the ⇧/⇩ buttons(**3**).

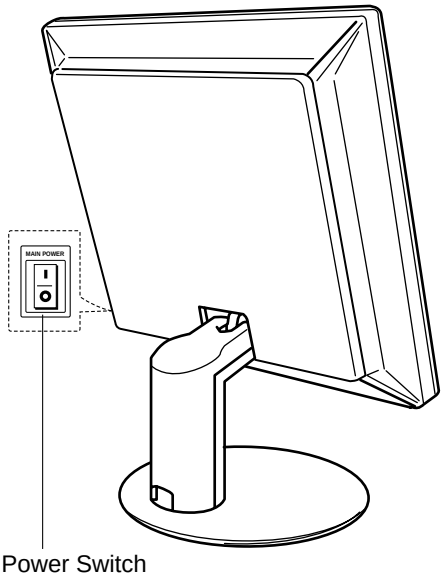
5. INPUT Button
This button switches the video input signal between INPUT1, INPUT2 and INPUT3 when two computers are connected to the monitor.

6. ECO Button
This button is used to reduce the power consumption.

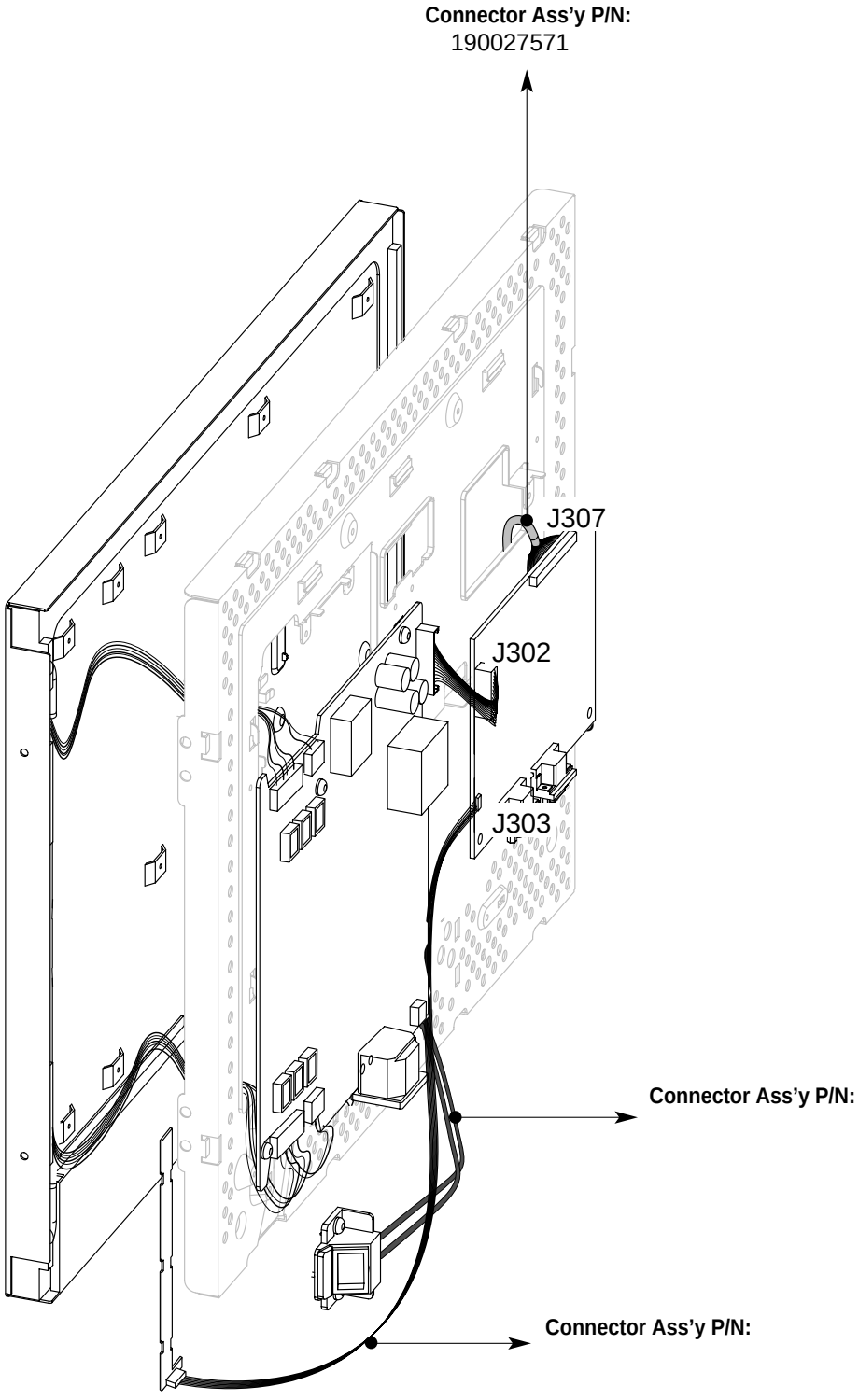
REAR VIEW



SIDE VIEW



WIRING DIAGRAM



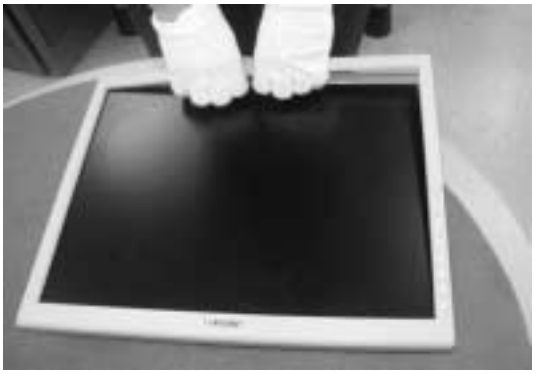
DISASSEMBLY

REAR CABINET REMOVEL.

1) Please lift the central inside edge of Front bezel upward with fingertip like picture then latch will be departed.

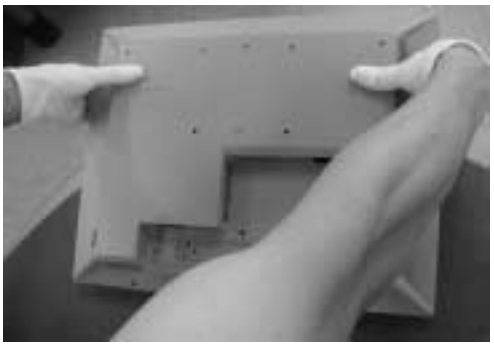
2) Progress upward and lifts bezel furtively and extracts latch.

3) Progress continuously and extracts latch of bezel upper by same method.



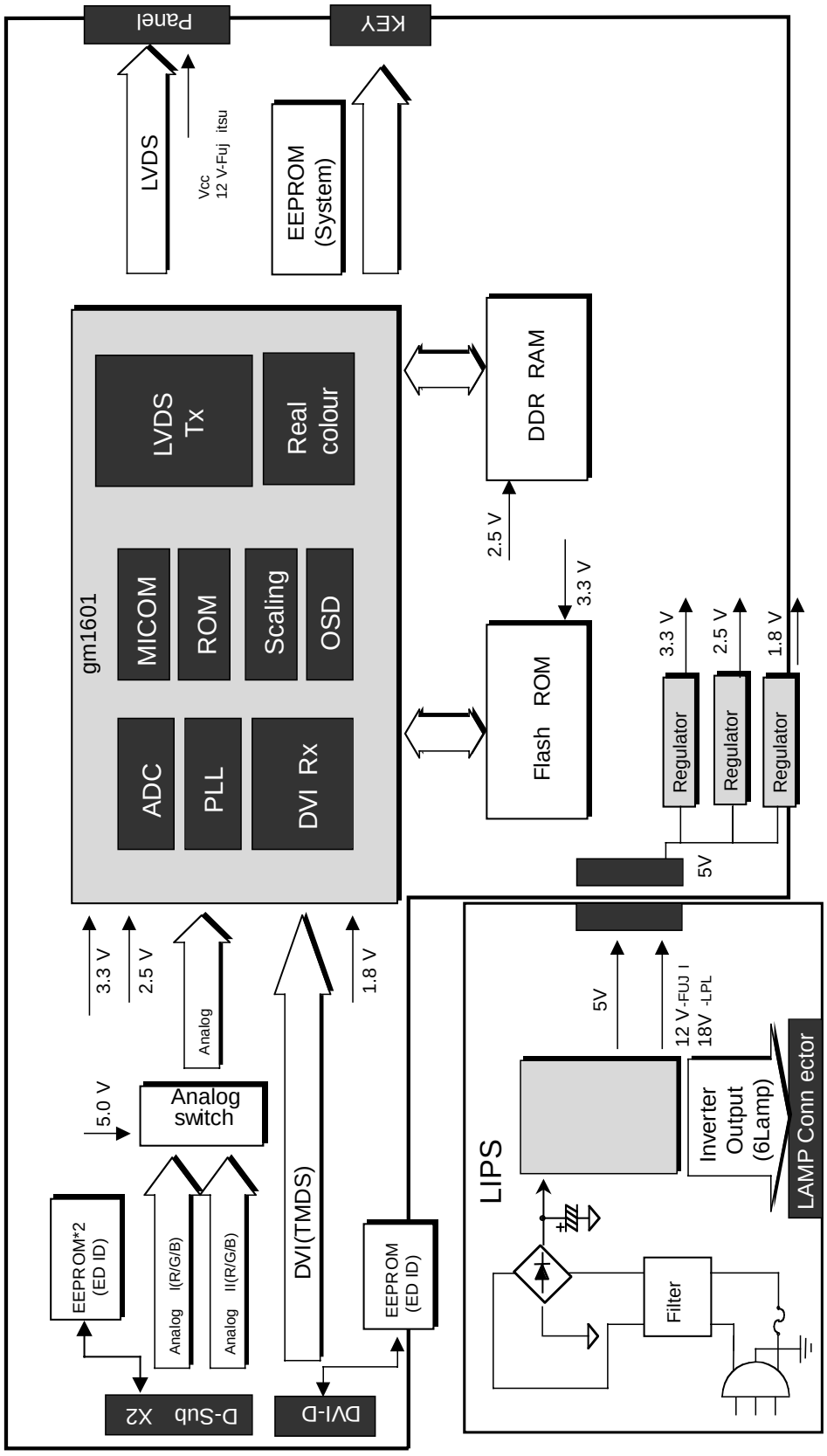
4) Progress continuously and extracts latch of bezel left by same method.

5) Please pull the Rear cabinet both edge outside with fingertips like picture, then Rear cabinet will be departed.



6) If Rear cabinet be departed easily, please pull upside edge of Rear cabinet outside.

BLOCK DIAGRAM



ADJUSTMENT

1. Procedures of how to go to service mode.

1) Enter the service mode of this unit by turning on the power while pressing and holding the " ↓ " key and " ↑ " simultaneously.
2) Press "MENU" key----MAINTAIN.
3) Press "OK" key to enter the service menu.
4) Select the desired function.
5) Press the "MENU" key to exit OSD.
6) Turn off the power and then turn on it again. The monitor then enters the normal mode.
   To enter the service again, repeat the procedure described above.

Note

W/B readjustment is required after the panel, board and microcomputer are replaced. However, be sure to perform aging for more than 30 minutes for RGB reset before W/B adjustment.

2. Setup

1) Prepare timing and pattern data for a signal generator according to the Sony timing specifications.
2) Connect a monitor video cable to the signal generator.
3) Put Color Analyzer(ex. CA-110) 50cm away from the monitor, specify it vertically in the center of the display, and adjust the focus to the optimum level using an eyepiece.
4) Put the monitor and Color Analyzer(ex. CA-110) in a light-shielded room.
5) Set up [SERVICE MODE] of the monitor.

3. Operation

Data is manually set to improve the productivity. The brightness, contrast, and backlight are set to 50, 70 and 100 respectively. After that, the default data of the color temperature to be adjusted is set.

4. Warm up time

Warm up for 30 minutes before performing any adjustment.

5. Adjustment for White Balance

a. Display SMPTE at SXGA/60Hz(Input level 0.73V /INPUT1).
b. Set up [SERVICE MODE].
c. Click "CLEAR EEPROM" and AC Power off.
d. Set up [SERVICE MODE] of the monitor again.
e. Click "WHITE BALANCE" and then select "AUTO".
f. Prepare timing and full black pattern.
g. Click "OFFSET CALIBRATION".
h. After offset calibration is completed prepare full white pattern.
i. Click " GAIN CALIBRATION".

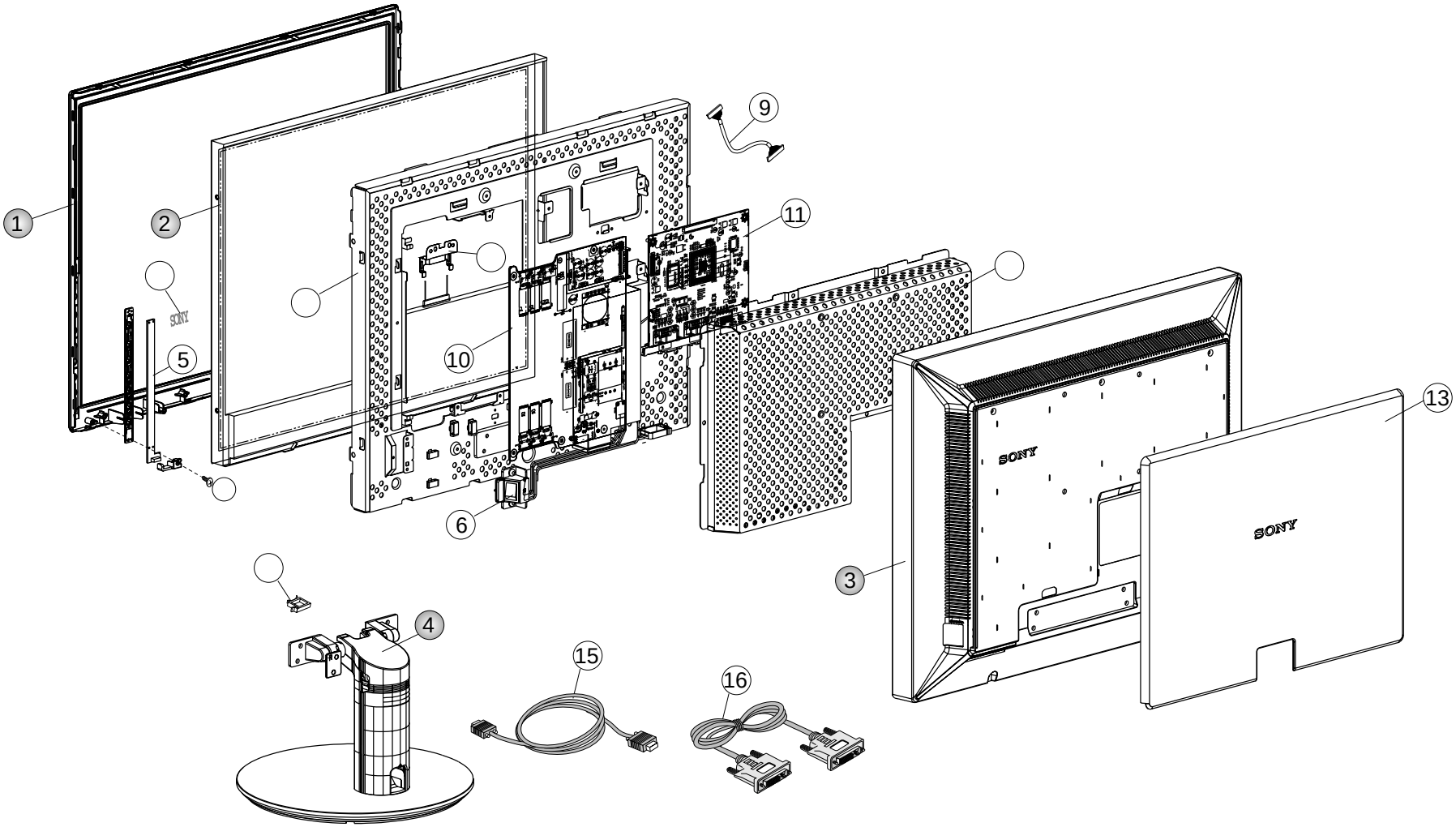
6. 9300K color adjustment

a. Select "9300K" in "COLOR TEMP" and enter.
b. Use a 100 IRE ALL white video field in the primary mode.(INPUT level 0.7V)
c. Adjust the color temperature.
   (X: 0.283 Y: 0.298)
d. Press "MENU" key to exit adjust mode.

7. 6500K color adjustment

a. Select "6500K" in "COLOR TEMP" and enter.
b. Repeat the adjustment procedure as steps b to d at 9300K. (X: 0.313 Y: 0.329)

EXPLODED VIEW



EXPLODED VIEW PARTS LIST

Ref. No.	SONY P/N	Description	LGE P/N
1	X40430331	BEZEL ASSY (Gray)	3091TKL099B
	X40430241	BEZEL ASSY (Black)	3091TKL099A
2	180559811	LCD (Fujitsu)	6304FFT004A
	N/A	LCD (LPL)	6340FLP095A
3	410234411	BACK CABINET (Gray)	3809TKL069B
	410234401	BACK CABINET (Black)	3809TKL069A
4	X40430341	STAND ASSY (Gray)	3043TKK131T
	X40430251	STAND ASSY (Black)	3043TKK131S
5	A1410995A	H MOUNT	6871TST477A
6	409656901	SWITCH COVER PLASTIC (Gray)	3550TKK344B
	409656911	SWITCH COVER PLASTIC (Black)	3550TKK344A
9	190027571	CONNECTOR ASSY	6631T11016W
10	A1410993A	G MOUNT (POWER AC-DC) (for Fujitsu)	6871TPT270A
	A1415807A	G MOUNT (POWER AC-DC) (for LPL)	6871TPT270B
11	A1410994A	A MOUNT (I/F) (for Fujitsu)	3313TL2016A
	A1415806A	A MOUNT(I/F) (for LPL)	3313TL2016B
13	410234311	Rear Door (Gray)	3550TKK493B
	410234301	Rear Door (Black)	3550TKK493A
	409738611	HOLDER, CABLE	N/A
	410234202	ID LABEL(U/C) Black	N/A
	410234212	ID LABEL(AEP) Gray	N/A
	410234222	ID LABEL(AEP) Black	N/A
	410234231	ID LABEL(J) Black	N/A

ACCESSORIES & PACKING MATERIALS

Ref. No.	SONY P/N	Description	LGE P/N
15	182775711	D-SUB Cable	6850TD9004G
16	182914511	DVI Cable	6866TDV004S
	182711811	AC Power Cord (U/C)	6410TUW004A
	182712011	AC Power Cord (AEP)	6410TEW006A
	182711911	AC Power Cord (JAPAN)	6410TJW003C
	410235601	CD-ROM	3170TZ1263A
	410189101	QUICK SETUP GUIDE (U/C)	3828TUO206P
	410189111	QUICK SETUP GUIDE (AEP)	3828TUO206N
	410189121	QUICK SETUP GUIDE (JAPAN)	3828TUO206Q
	409440101	Protection Bag	3880TKZ009E
	410235401	Cushion (Upper & Lower)	3920TKP016A
	410236701	CARTON BOX (Gray)	3890TSE574A
	410235301	CARTON BOX (Black)	3890TSE574B

9-878-220-01

Sony EMCS Corporation
Ichinomiya Tec

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